



March 13, 2018

Michigan House Energy Committee
Lansing, Michigan

RE: Committee hearing on electric vehicles and infrastructure needed for the 21st Century

Dear Committee Members:

Thank you for the opportunity to comment on electric vehicle adoption in Michigan and the expansion of charging infrastructure. The Michigan Environmental Council (MEC) is a coalition of over 65 environmental, conservation and faith-based groups located across the state of Michigan. We have significant expertise and a long history of involvement in discussions around both transportation and energy policy in Michigan.

Recent announcements on EV development by major auto manufacturers highlight that the future of transportation around the globe is electric. Ford plans an \$11 billion investment in electric vehicles by 2022 with the plan of adding 40 hybrid and fully electric vehicles to its fleet. General Motors will produce 10 new EVs by 2023. There are currently 13,203 EVs on the road in Michigan and 332 publicly available charging stations.

We feel strongly that Michigan, as the car capitol, is well situated to lead on the expansion of the electric vehicle market. Already the Michigan Public Service Commission (MPSC) has hosted two successful conferences where a wide variety of stakeholders, including utilities, auto manufacturers, private industry, and environmental and energy advocates, agreed that Michigan should act now to prepare for and facilitate the continued adoption of EVs. We would encourage Michigan legislators to embrace the transition to electric and to adopt and implement programs and policies that ensure Michigan is undertaking the transition to electric in a way that maximizes the benefits for all residents of our state. Members of the House Energy Committee are also uniquely situated to lead on policies that ensure the smart integration of electric vehicles into Michigan's grid.

Electric Vehicle Benefits to Michigan

A recent report from M.J. Bradley & Associates entitled "Electric Vehicle Cost-Benefit Analysis" took a look at what additional adoption of electric vehicles would mean for Michigan under two different EV market growth scenarios.¹ The moderate plug-in electric vehicle (PEV) scenario is based on levels of PEV penetration included in a future-planning analysis conducted by the Midcontinent Independent System Operator (MISO) and estimates PEV adoption in Michigan will grow from approximately 14,000 today to 1.7 million in 2050. The high PEV

¹ Electric Vehicle Cost Benefit Analysis: Michigan, M.J. Bradley & Associates LLC, August 2017.

scenario is based on Bloomberg New Energy Finance's July 2017 forecast of U.S. PEV sales through 2040 and estimates that PEV adoption will grow to 5.4 million by 2050.

Under the moderate PEV case, the MJ Bradley analysis indicates that "the net present value of cumulative net benefits from greater PEV use in Michigan will exceed \$8.6 billion state-wide by 2050."² That \$8.6 billion broke down into: \$0.8 billion in savings to Michigan utility customers from reduced electricity bills, \$6.3 billion to Michigan drivers from reduced annual operating and maintenance costs, and \$1.5 billion to Michigan at-large in benefits from reduced greenhouse gas emissions.

In the high PEV case, the monetary benefits increase dramatically. The MJ Bradley analysis concludes that "the net present value of cumulative net benefits from [scenario 2 PEV adoption levels] could exceed \$31 billion state-wide by 2050."³ Electricity customers would see \$2.6 billion in savings from reduced bills, drivers would accrue \$23.1 billion from a decrease in operating and maintenance costs, and as a state Michigan would see \$5.7 billion in benefits from decreased greenhouse gas emissions.

Ratepayer Benefit through Rate Design

As noted above, Michigan ratepayers stand to accrue significant savings from the increased use of EVs. These savings are especially important given that Michigan ratepayers, in particular residential ratepayers, are subject to high rates in comparison to other states and the national average. Ten years ago, Michigan residential rates were identical to the national average (10.06 cents). Since then, our residential rates increased 52% versus national rates that increased only 25%. Over that same time period Michigan's median household incomes declined 9%. Residential energy rates in Michigan are 16% higher than the Midwest average and 18% higher than the U.S. average.⁴

However, realizing these savings from the increased use of EVs is dependent not only on rate of growth in EV adoption, but also percentage of charging that occurs during off-peak hours. In Michigan daily energy consumption ramps up through the morning and early afternoon, peaks between 3PM and 5PM, and then begins to fall off. If the majority of EV charging occurs during peak hours, utilities would see an increase in peak load and—depending on how large of an increase—the potential need to add new capacity to increase peak capacity. The resulting need for new capacity would drive up utility rates. However, if the increased demand can be shifted to off-peak and super off-peak (between midnight and 5AM) hours, EV charging can actually support better load management and improve grid utilization by evening out the demand curve and minimizing strain on the grid during peak times.

Using price signals has been shown to be an incredibly effective means of encouraging individuals to load shift. Simple time-of-use rates incentivize off-peak charging by setting a

² Ibid, MJ Bradley & Associates, page iii

³ Ibid, MJ Bradley & Associates, page iii

⁴ Energy Information Administration Monthly report, <https://www.eia.gov/electricity/monthly/>. 1st Qtr. 2017 report, https://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_5_06_b

higher rate for energy used during peak when it is at a premium and a lower rate during off-peak or super off-peak time. A utility in the San Diego region offered EV drivers a time-of-use rate with significantly lower rates for charging between midnight and 5AM. As a result the utility saw the increased energy use from EV charging concentrated in those hours. In contrast, utilities in the Dallas/Ft. Worth area, where no time-of-use rates or off-peak charging incentive is offered, saw the EV charging load concentrated between around 5PM when people got home from work and midnight.

Time-of-use rates that are consistent and stable allow individuals to easily predict how their behaviour will impact their electric bill and modify their actions accordingly. Most Michigan utilities currently offer some form of time-of-use rates for the subset of EV drivers. However these rates should be examined to ensure the programs are robust, encourage customer participation, and effectively shift EV load. Michigan utilities without time-of-use rates for EVs should be encouraged to offer that rate structure to their EV customers.

In many cases Michigan utilities require the use of a second advanced meter in order for EV owners to enroll in time-of-use rates. Purchase of an advanced meter can be cost-prohibitive for individuals. Offering a “whole house” time-of-use rate that takes into account EV charging can be one option to avoid the need for a second meter and could potentially save the ratepayer even more by shifting home-related energy use to off-peak time. Other states are also exploring sub-metering for EV drivers whereby the meter is embedded in the EV supply equipment. Michigan decision-makers should explore alternatives to second meters and find a mechanism to remove this barrier for individuals to enroll in time-of-use rate programs.

Given the significant benefits that EVs bring not only to their owners, but also to Michigan residents more broadly, it is no surprise that the transition to EVs is rapidly occurring. However, many potential EV benefits are contingent on the smart integration of EVs into our grid. By concentrating charging during off-peak hours we can accommodate the increased EV load without the need for new generation capacity and appreciate savings for Michigan ratepayers. As members of the House Energy Committee, you are well situated to play a leadership role in supporting policies and programs that maximize the potential benefits of EVs by prioritizing effective load management.

Sincerely,

Charlotte Jameson
Energy Policy and Legislative Affairs Director

